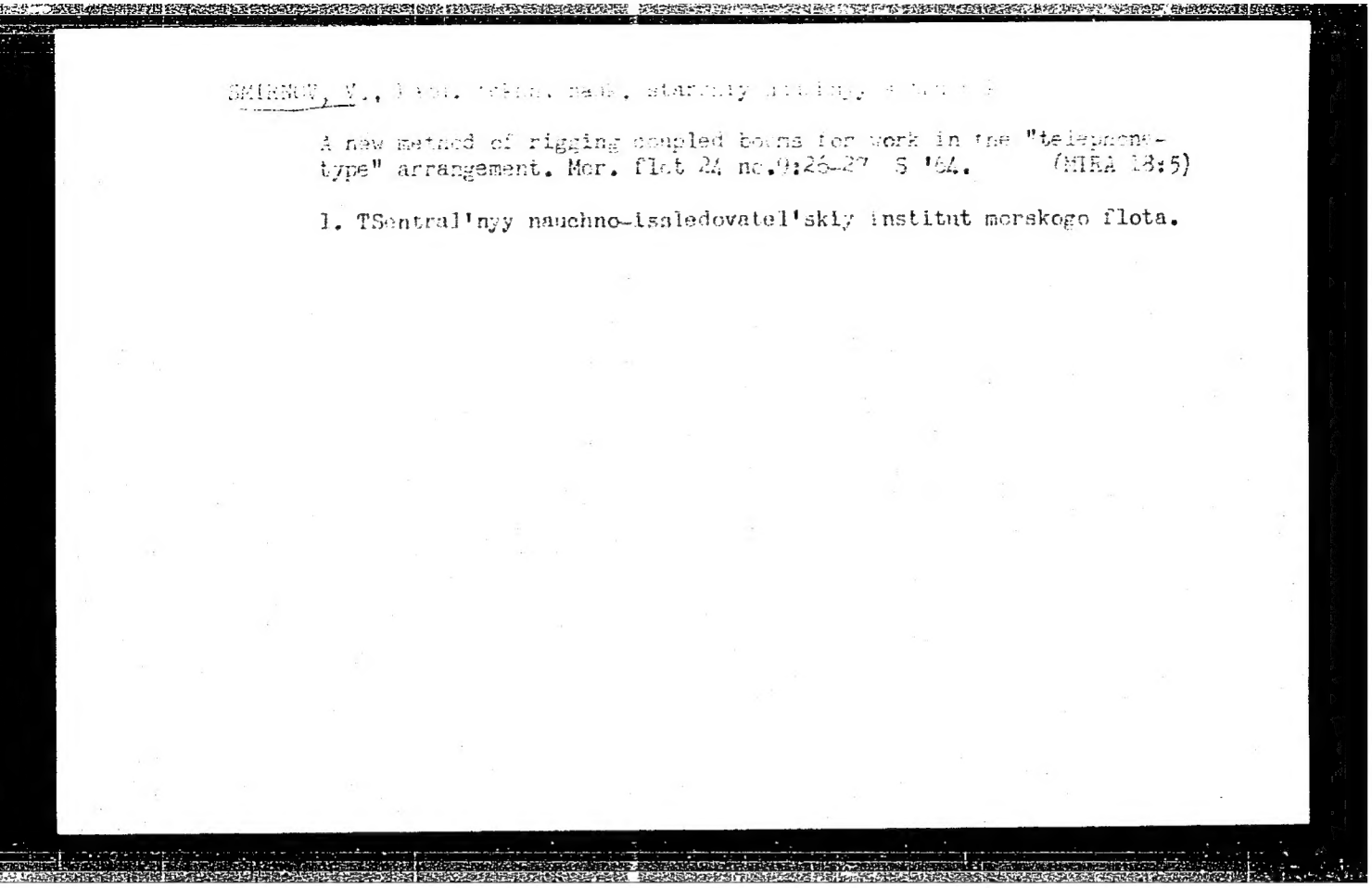


[illegible], V., [illegible]

A new method of rigging coupled booms for work in the "telephone-type" arrangement. Mor. flot 24 no.9:26-27 S '64. (MIRA 18:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut morskogo flota.

SMIRNOV, V., inzh.

Heating elements in exterior foamed slag concrete panels. Zhil. stroi. no.6:27 '65. (MIRA 18:10)

L 28524-66 EWT(m)/T DJ/WE

ACC NR: AP6012335 (A) SOURCE CODE: UR/0317/65/000/006/0083/0083

AUTHOR: Smirnov, V. (Engineer, Lieutenant colonel)

28
B

ORG: None

TITLE: Fuel oil filters

SOURCE: Tekhnika i vooruzheniye, no. 6, 1965, 83

TOPIC TAGS: fuel oil, diesel engine, diesel fuel /4Ch-8.5-11 diesel engine

ABSTRACT: The use of new filters for diesel engines of 4Ch-8.5/11 type is described. The new filtering element is made of paper (instead of cloth) removing 98% of particles including those in sizes less than one micron. The life of the new element is 1500 hours on condition that it is cleaned every 300 hours. The cleaning operation was described. The filtering element is placed inside a cylinder equipped with a central supporting rod. The oil is fed through an upper valve arrangement and a pipe. The purified fuel oil is discharged through a lower faucet. Orig. art. has: one diagram showing the cross section of the filter.

SUB CODE: 13 / SUBM DATE: None

Card 1/1 CC

L 25707-66 EWT(d)/EWT(m)/EWP(f)/T-2/EWP(h)/EWP(i)
ACC NR: AP6010468 (N) SOURCE CODE: UR/0029/66/000/002/0003/0004

AUTHOR: Smirnov, V. (Engineer)

ORG: None

TITLE: The ship "Parizhskaya Kommuna" is ready for navigation

SOURCE: Tekhnika-molodezhi, no. 2, 1966, 3-4

TOPIC TAGS: shipbuilding engineering, marine engineering, ship component, propulsion device, marine engine

ABSTRACT: The author discusses the advantages of a screw propeller of adjustable-blade type, designed by him for the 25000-ton ship "Parizhskaya Kommuna". The screw is driven by a 13000-hp gas turbine and has a diameter of 6 m. The turbine unit was designed for an operating time of 80,000 hr. The temperature of exhaust gas was rated at 750 C. A reduction gear was inserted between the turbine and the screw shafts to reduce the revolutions from 6350 to 102 rpm. In general, the weight of a gas turbine unit is twice as low as the weight of a similar steam turbine unit and four times less than that of a diesel unit. The problem of braking and reversing the ship motion was reviewed and the use of screws with variable pitch was considered as the most convient means for controlling the performance of gas-turbine propulsion. It was

Card 1/2

L 25707-66

ACC NR: AP6010468 O

mentioned that adjustable-blade screws were already used for propulsion of the old Russian submarines "Minoga", "Bars" and "Akula". In general, the adjustable-blade propeller is more expensive, its design is more complicated, the efficiency is somewhat lower and the cavitation effect is stronger. However, these disadvantages are compensated by the high maneuverability and operational suitability for changing the speed of the ship and reversing its motion. The ship can be stopped easier and stand still with rotating engines. The crew number can be reduced because the adjustable-blade mechanism can be actuated by one man only. The advantages of using adjustable-blade screws for hydrofoil boats and in connection with steam turbines and diesel engines were discussed. In conclusion, the author believes that river craft and seagoing ships will use this mode of propulsion. At present, they can be used for power plants up to 40000 hp especially for the screw propellers with an increased number of revolutions.

SUB CODE: 13 / SUBM DATE: None / ORIG REF: 000 / OTH REF: 000

Card 2/2 Jo

L 54857-65 EWT(d)/EWT(m)/EWP(f)/EPR/T-2/EWA(c) Ps-4
ACCESSION NR: AP5016364 UR/0029/65/000/006/0037/0037

AUTHOR: Smirnov, V.(Engineer)

16
B

TITLE: Obedient to the wheelman

SOURCE: Tekhnika - molodezhi, no. 6, 1965, 37, and insert facing p. 37

TOPIC TAGS: shipbuilding engineering, auxiliary vessel, ocean transportation, propulsion equipment, propulsion engineering

ABSTRACT: New tugboats of an unconventional type have recently appeared in Soviet ports. They are described as having no paddle wheels, screw propellers, or rudders, but are equipped with vertical blades mounted on two disks located on the fore bottom. These tugboats exhibit superior maneuverability and can be controlled by only one man. This kind of propulsion system is widely used on many different types of smaller ships.

Card 1/2

L 54857-65

ACCESSION NR: AP5016364

Taking into consideration the fact that large ocean liners spend a considerable amount of time maneuvering, particularly in harbors, their use of the above-described propulsion system would be very advantageous. Mounted in a transverse tunnel in the foreship, such rotating blades would, through the action of laterally ejected water, propel the ship in the desired direction. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: PR, GO

NR REF SOV: 000 OTHER: 000 ATD PRESS: 4025-F

Card 2/2

[illegible]

[illegible] spider control. Zashch. rast. ot vred. i bol. 10 no.3:
3[illegible] '65. (MIRA 19:1)

1. Nachal'nik Ul'yanovskogo otryada po zashchite rasteniy (for Belov). 2. Glavnyy agronom Ul'yanovskogo plodopitomnicheskogo sovkhoza (for Smirnov).

SMIRNOV, V.

We are training staunch fighters. Komm. Vooruzh. Sil 46 no.22: 60-65 N '65. (MIRA 19:1)

1. Pervyy sekretar' Moskovskogo oblastnogo komiteta Vsesoyuznogo Leninskogo kommunisticheskogo soyuza molodezhi.

ACC NR: AP6019284 SOURCE CODE: GE/0030/66/015/002/K105/K108

AUTHOR: Zhitar, V.; Oksman, Ya.; Radautsan, S.; Smirnov, V.

ORG: Institute of Applied Physics, Academy of Sciences, MSSR; Kishinev Polytechnical Institute

TITLE: Some photodielectric and luminescent properties of new semiconducting single crystals of the $Zn_3In_2S_6$ phase

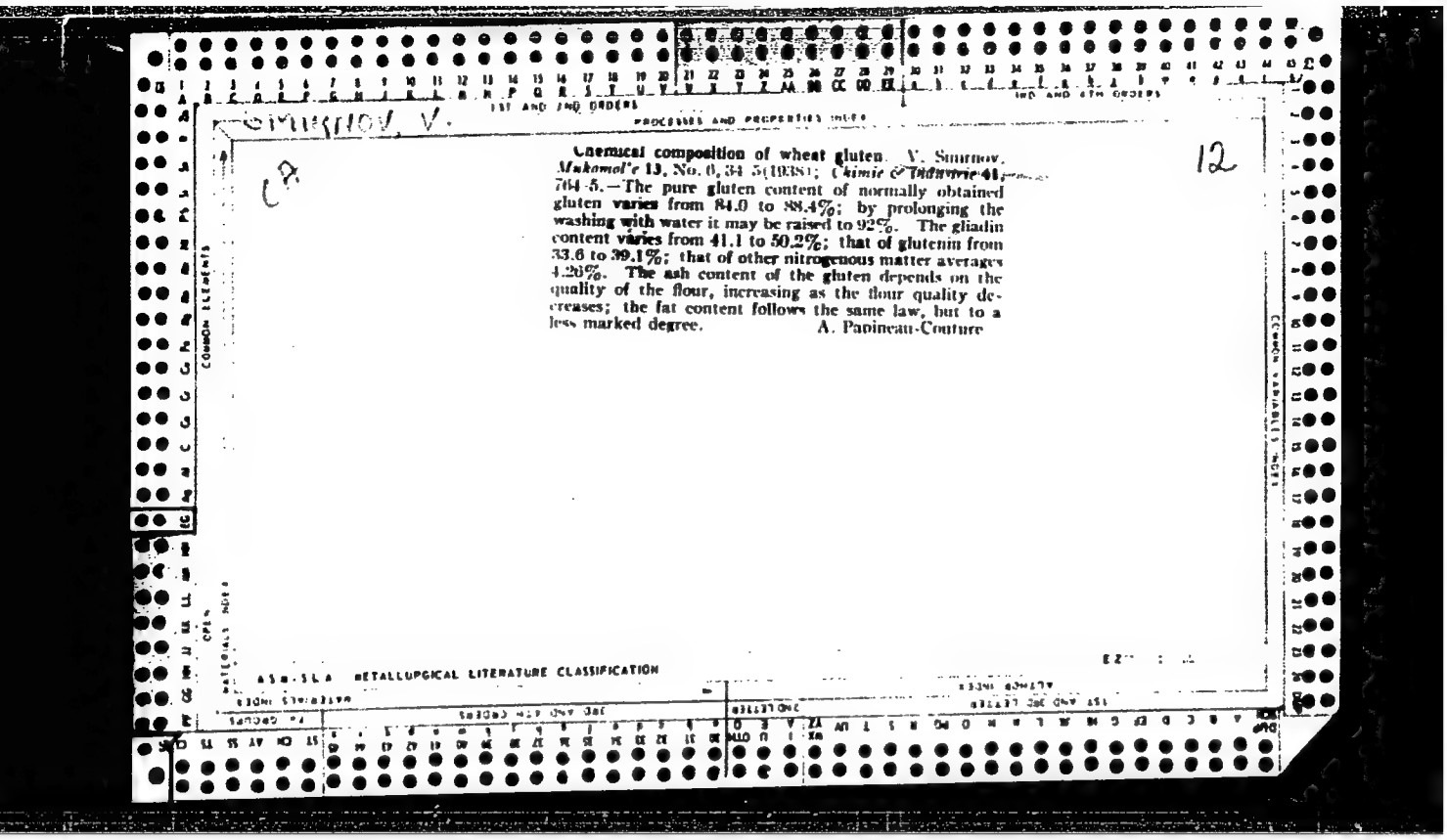
SOURCE: Physica status solidi, v. 15, no. 2, 1966, K105-K108

TOPIC TAGS: semiconductor single crystal, semiconductor conductivity, luminescent crystal, sulfide, indium compound, zinc sulfide, photoelectric property, forbidden zone width, photoconductivity

ABSTRACT: Basic differences are shown to exist between the properties of $Zn_3In_2S_6$ crystals and those of $ZnIn_2S_3$. Earlier studies of this new semiconductor phase of the $ZnS-In_2S_3$ system have been reported by the authors (*Izv. Akad. Nauk MSSR*, 2, 9, (1965)). The photodielectric and luminescent properties of the crystals were studied in order to determine the width of the forbidden zone and the position of extrinsic levels. The width of the forbidden zone (2.76-2.82 ev) determined by the photodielectric method agreed with measurements made by optical absorption methods. The optical quenching spectrum of the photoconductivity and the spectral distribution of the pho-

Card 1/2

Card 2/2



SMIRNOV, V.

12

Chemical composition of wheat gluten. V. Smirnov. *Mukomol'e* 13, No. 6, 34–5(1938); *Chimie & Industrie* 41, 764–5.—The pure gluten content of normally obtained gluten varies from 84.0 to 88.4%; by prolonging the washing with water it may be raised to 92%. The gliadin content varies from 41.1 to 50.2%; that of glutenin from 33.6 to 39.1%; that of other nitrogenous matter averages 4.26%. The ash content of the gluten depends on the quality of the flour, increasing as the flour quality decreases; the fat content follows the same law, but to a less marked degree. A. Papineau-Couture

A5a-5La METALLURGICAL LITERATURE CLASSIFICATION

SMIRNOV, Valentin Aleksandrovich.

The technology of hydrolysis: textbook Moskva Pishchepromizdat, 1948. 362 p.
(49-29785 rev)

TP156.H82S5

1. Hydrolysis.

SMIRNOV, V.A.

Smirnov, V.A. "Nutritive lactic acid and its effect on contamination with cyanic ions on the stability of ascorbic acid (Vitamin C)," Trudy Kuybysheva. gos. med. in-ta., Vol. I, 1948, P. 289-298

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

1. SHIRIOV, V. A.

2. USSR (600)

4. Starch

7. History of the discovery of hydrolysis of starch, Trudy Len. inst. pishch. prom., 1, 1949.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

SMIRNOV, V. A.

3

(3)

Chemical Abstracts
May 25, 1954
Cellulose and Paper

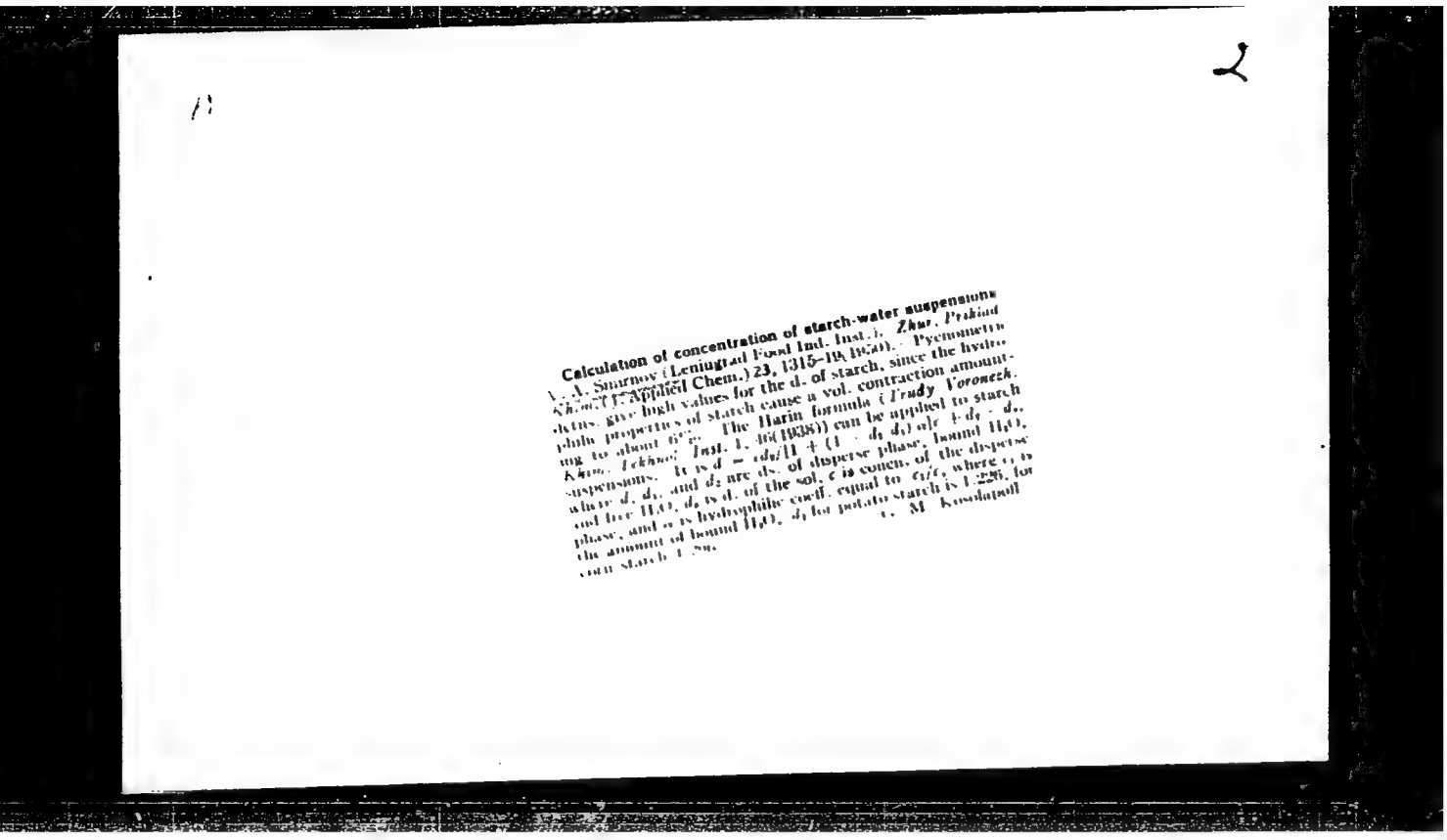
✓ Utilization of sulfite liquor in the production of alcohol. V. A. Smirnov and A. N. Bondarenko. *Trudy Leningrad. Tekhnol. Inst. Pishchevoi Prom.* 1(IX), 77–90(1949).—One cu. m. of sulfite liquor yields 5.86 l. of abs. EtOH. The loss of EtOH during the mash rectification process is about 5%. The normal steam consumption per dl. alc. is about 200 kg. Emanuel Merdinger

10-12-54

CA

2

Calculation of the concentration of starch-water suspensions. V. A. Smirnov (Leningrad Tech. Inst.). *J. Applied Chem. U.S.S.R.* 23, 1397–1400(1950)(Engl. translation).—See *C.A.* 46, 5811b. B. R.



Calculation of concentration of starch-water suspensions

V. A. Smirnov (Leningrad Food Ind. Inst.). *Zhur. Prikład Khim.* (*J. Applied Chem.*) **23**, 1315–19 (1950). Pycnometric data give high values for the d. of starch, since the hydrophilic properties of starch cause a vol. contraction amounting to about 6%. The Harin formula (*Trudy Voronezh. Khim. Tekhnol. Inst.* **1**, 16(1938)) can be applied to starch suspensions. It is $d = cd_2/[1 + (1 - d_1/d_2)c/d_1]$, where d, d_1, and d_2 are ds. of the sol, of dispersed phase, and of free H_2O, d_2 is d. of the sol. c is concn. of the dispersed phase, and α is hydrophilic coeff. equal to c_1/c, where c_1 is the amount of bound H_2O. d_2 for potato starch is 1.226, for corn starch 1.290.

M. Konoplitzoff

CA

7

Effect of mineral admixtures on the determination of reducing sugar. V. A. Smirnov and A. N. Boudarenko (Leningrad Technol. Inst.—Food Ind.). *Zhur. Prikład Khim.* (J. Applied Chem.) **23**, 972-5(1950). The iodometric method is not affected by the presence of KCl, NaCl, K_2SO_4, Na_2SO_4, or $CaSO_4$. Fe^{+3} salts give low results owing to conversion to Fe^{++}. Small amts. of NH_4 salts give high results, but as their concn. rises the effect becomes smaller and finally becomes neg.; the titration mixts. deposit small amts. of what appears to be NH_4. $MgSO_4$ causes high results starting with 0.02 *M* concn., while $MgCl_2$ gives high but at concn. above 0.036 *M* the results are low. KH_2PO_4 has no effect. Methods based on detn. after oxidation of sugar by Cu(I) were tested; of these the ebulliostatic method suggested by Nazorkin (*Sbornik po obmenu tekh. opytom*, 2, 32(1947)) which consists of direct titration of alk. Cu_2O in an ebulliostatic app. in the presence of ferrocyanide with methylene blue indicator, was found to give very accurate results. NH_4Cl, $CaSO_4$, and $MgSO_4$, when present in high concns., give, resp., somewhat high, low, and high results (error about 2% max.).

G. M. Kosolapoff

A

The rate of formation of humic substance from sugars
V. A. Smirnov (Leningrad Pedol Inst). *Zhur Prikhad. Khim.* (J. Applied Chem.) 24, 887-92 (1951). The rate of humification is formally that of an equation of the 1st order on the basis of expts. with monosaccharides (glucose, galactose, arabinose, and xylose), the yields increasing in the order cited. The expts. made use of 64.6% H_2SO_4, 72% H_2SO_4, and 78% H_2SO_4 at 20°. The yield of humic acids depends also on the nature of the sugar and the acetyl-ated humic acids above 100° the reaction goes mainly toward org. acids and the yield of humic acids declines 3-4 fold.
G. M. Kosolapoff

1. SMIRNOV, V. A., SMIRNOVA, A. I.

2. USSR (6CC)

4. Polariscope

7. A source of error in the polarimetric determination of starch in grain. Biokhimiia 17 no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

BARTENEV, Ye.N., dotsent; SMIRNOV, V.A., dotsent, redaktor; TRUSOVA, S.A., kandidat tekhnicheskikh nauk, retsenzent; BARTEN'YEV, S. I., kandidat tekhnicheskikh nauk, retsenzent; DAMASKINA, G.B., redaktor; CHEBYSHEVA, Ye.A., tekhnicheskiy redaktor.

[Technology of liqueur and vodka production] Tekhnologiia likero-vodochnogo proizvodstva. Pod obshchei red. V.A. Smirnova. Moskva, Pishchepromizdat, 1955. 414 p. (MLRA 8:12)
(Liquor industry)

SMIRNOV, V.A.

USSR/Chemical Technology - Chemical Products and Their Application. Carbohydrates and Refinement I-26

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 13797

Author : Smirnov V.A.
Inst : Leningrad Technological Institute of the Food Industry
Title : Physicochemical Properties of Coloring Matter and Humic Substances Formed on Acidic Decomposition of Glucose.

Orig Pub : Tr. Lenigr. tekhnol. in-ta pishch. prom-sti, 1955, 12, 213-230

Abstract : Use of physicochemical methods in the study of the products of acidic decomposition of glucose and other monosaccharides has made it possible to ascertain that the coloring and humic substances have a cyclic structure; the elemental component of the molecules of these substances is the compound formed from hydroxymethyl-furfural and located in the immediate vicinity thereof; coloring substances behave as colloidal electrolytes

Card 1/2 - 386 -

SMIRNOV, V.A

Mid

The formation of melanoidins. V. A. Smirnov and K. A. Gelspits (Technol. Inst., Food Ind., Leningrad). *Biokhimiya* 21, 633-5(1956).—Two series of expts. were performed, one using glucose, the other using glucose and glycine. The contents of sugar and of amino acid correspondingly were 7.0 and 0.3 g./100 ml. The expts. were designed to det. the role played by pH in the acid zone with buffer solns. prepared from citric acid and Na_2HPO_4. The mixt. was heated over a water bath for 15 hrs. and then cooled and pH and color intensity detns. made. In the process of the melanoidin formation the color intensity of the soln. became intensified as compared with the color of the soln. which contained the glucose alone. It was, therefore, not necessary to det. the quantity of free amino acid groups. Prior to detg. the color change the soln. must be adjusted to pH 4.5. The effect of the pH on the formation of the melanoidins was studied in the acid zone (using a soln. of phosphate-citrate buffer) and at a temp. of 100°. Glucose and glycine form melanoidins at pH > 2.2. The intensity of the reaction depends upon the stability of the monosaccharides and the reactivity of the amino acids in acid medium.

B. S. Levine

SMIRNOV, V.A.; GEYSPITS, K.A.

Stability of monosaccharides in solutions with various pH values [with summary in English]. Biokhimiia 22 no.5:904-910 S- '57. (MIRA 11:1)

1. Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti.

(MONOSACCHARIDES,
resist. in solutions with various pH (Rus))

BELIKOVA, A.P.; GOLUBOVA, R.Z.; SMIRNOV, V.A.

Determining the extractive value of fruits and berries. Izv. vys.ucheb.zav.; pishch.tekh. no.6:148-152 '58.
(MIRA 12:5)

1. Leningradskiy tekhnologicheskiy institut pishchchevoy promyshlennosti, Kafedra tekhnologii spirta i likero-vodochnykh isdeliy.
(Fruit--Chemical composition)
(Extraction (Chemistry)) (Fruit juices)

CHETVERIKOV, Ye.F.; SMIRNOV, V.A.

Swelling of grain during steaming in the manufacture of alcohol. Izv.vys.ucheb.zav.; pishch.tekh. no.2:68-72 '59.
(MIRA 12:8)

1. Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti.
(Grain) (Distilling industries)

FERTMAN, Grigoriy Isaakovich; SHUL'MAN, Mark Solomonovich; SMIRNOV, V.A., prof., retsenzent; RAYEV, Z.A., kand.tekhn.nauk, retsenzent; KOVALEVSKAYA, A.I., red.; SOKOLOVA, I.A., tekhn.red.

[Physicochemical principles of the production of alcohol] Fiziko-khimicheskie osnovy proizvodstva spirta. Moskva, Pishchepromizdat, 1960. 258 p. (MIRA 13:11)

(Alcohol)

MAL'TSEV, Petr Mikhaylovich, prof., doktor tekhn.nauk; VESELOV, I.Ya., prof., retsenzent; SMIRNOV, V.A., prof., retsenzent; KRUGLOVA, G.I., red.; KISINA, Ye.I., tekhn.red.

[Technology of the fermentation industries; a general course] Tekhnologiia brodil'nykh proizvodstv; obshchii kurs. Moskva, Pishchepromizdat, 1960. 522 p. (MIRA 13:7)
(Fermentation)

AGEYEV, Leonid Mikhaylovich, dots.; IVANOV, Sergey Zakharovich, prof.; SMIRNOV, Valentin Aleksandrovich, prof.; SILIN, P.M., prof., red.; MURASHOVA, O.I., red.; SOKOLOVA, I.A., tekhn. red.

[Technology of sugar substances; general course] Tekhnologiia sakharnykh veshchestv; obshchii kurs. Pod red. P.M.Silina. Moskva, Pishchepromizdat, 1961. 488 p. (MIRA 15:3)
(Sugar) (Starch)

SOTSKAYA, V.P.; SMIRNOV, V.A.

Chemical changes of starch due to cooking in the distilling industry. Izv. vys. ucheb. zav.; pishch. tekh. no.4:25-34 '61. (MIRA 14:8)

1. Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti, kafedra tekhnologii spirta.
(Starch) (Distillation)

SOTSKAYA, V.P.; SMIRNOV, V.A.

Effect of the pH during the thermal processing of grains on the losses of fermented carbohydrates and the yield of alcohol. Izv. vys. ucheb. zav.; pishch. tekh. no.2:93-98 '63.
(MIRA 16:5)

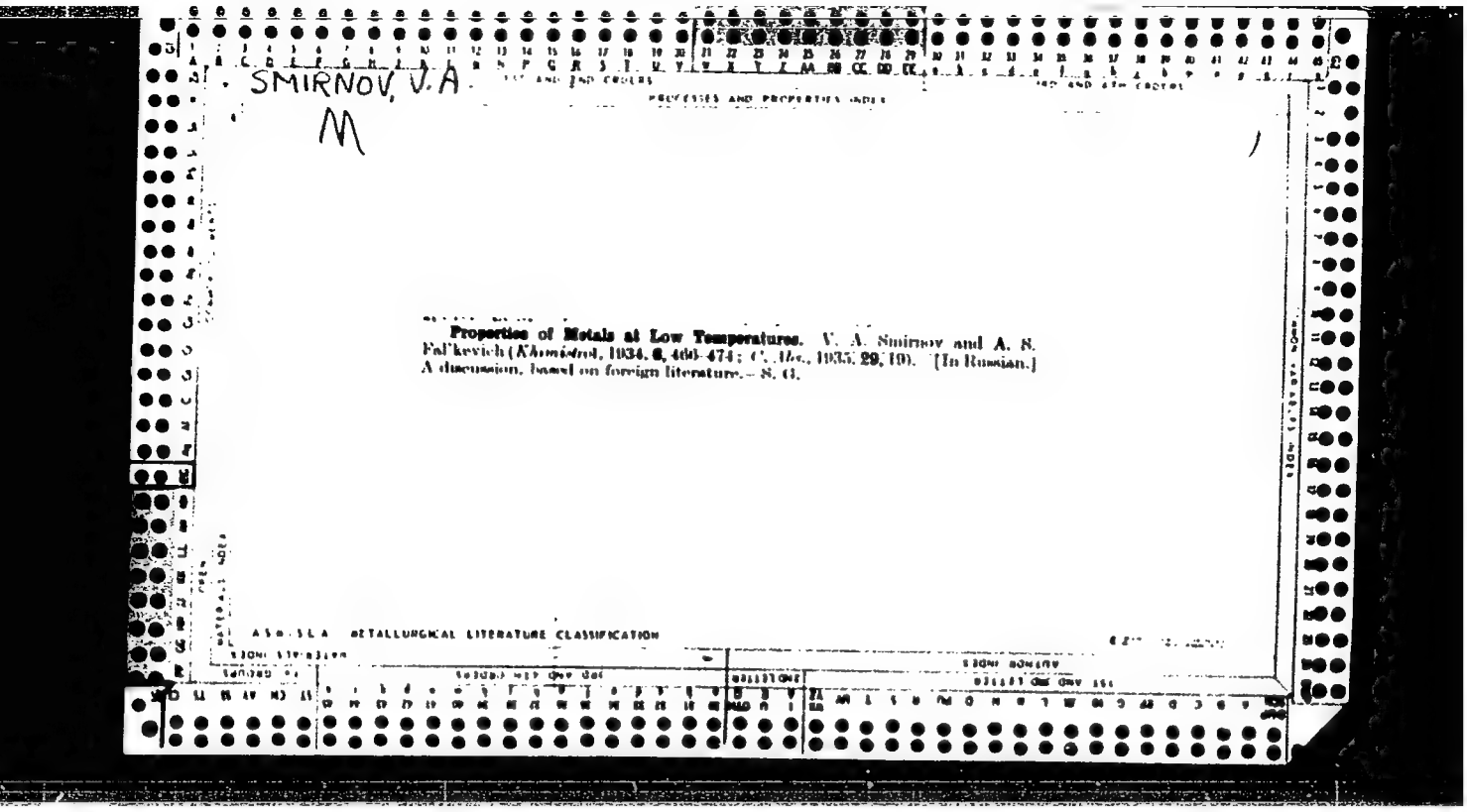
1. Leningradskiy mezhotraslevoy nauchno-issledovatel'skiy institut pishchevoy promyshlennosti, laboratoriya tekhnologii spirta.

(Distillation)

SOTSKAYA, V.P.; SMIRNOV, V.A.; TIKHOMIROVA, L.Ya.

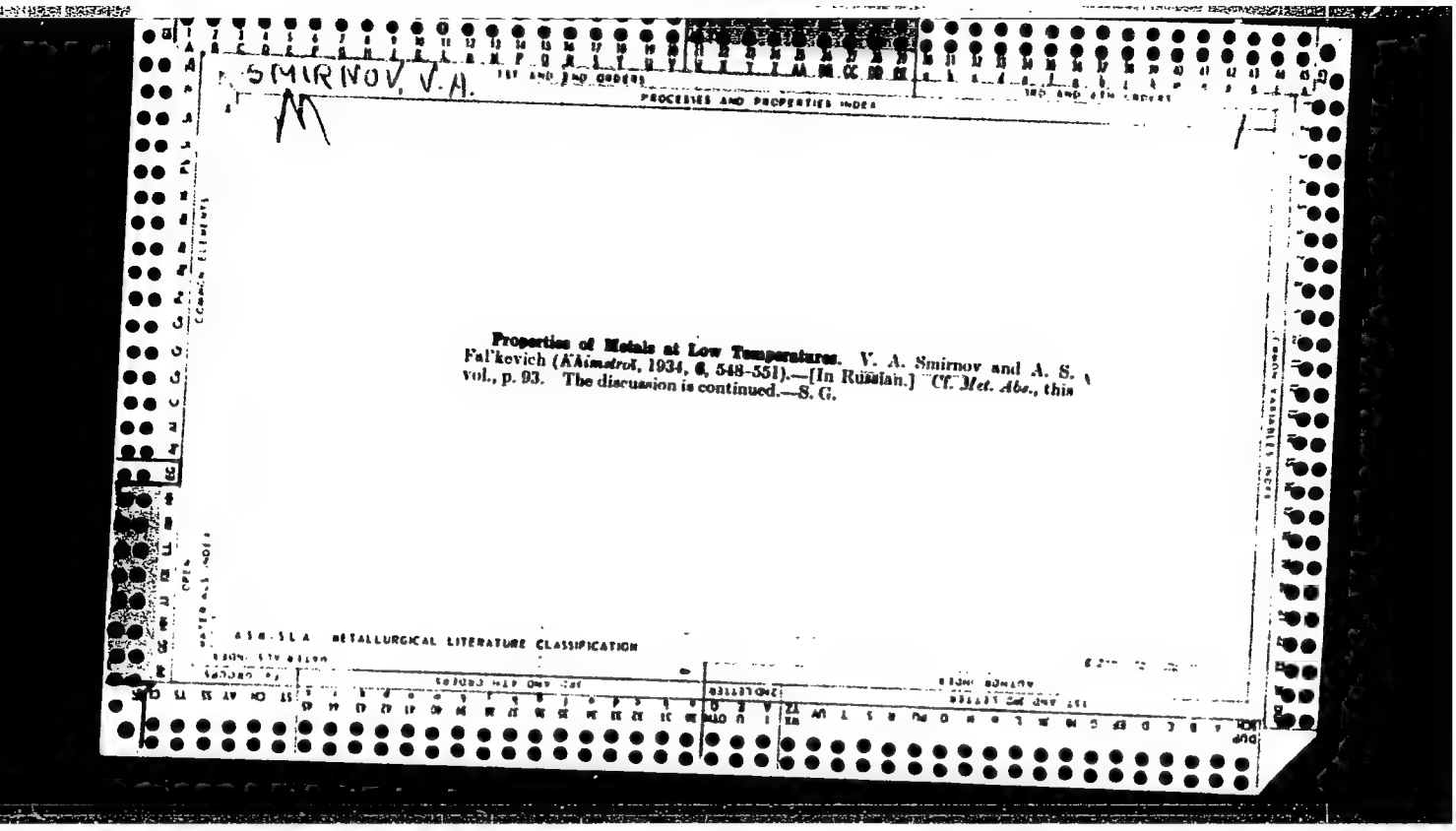
Effect of pH on alcohol yield in the thermal treatment of crushed raw materials. Izv. vys. ucheb. zav.; pishch. tekh. no.6:67-69 '63. (MIRA 17:3)

1. Leningradskiy mezhotraslevoy nauchno-issledovatel'skiy institut pishchevoy promyshlennosti, laboratoriya tekhnologii spirta.


SMIRNOV, V.A.

M

Properties of Metals at Low Temperatures. V. A. Smirnov and A. S. Fal'kevich (*Khimstroi*, 1934, **6**, 466–474; *C. Ilc.*, 1935, **29**, 10). [In Russian.] A discussion, based on foreign literature.—S. G.

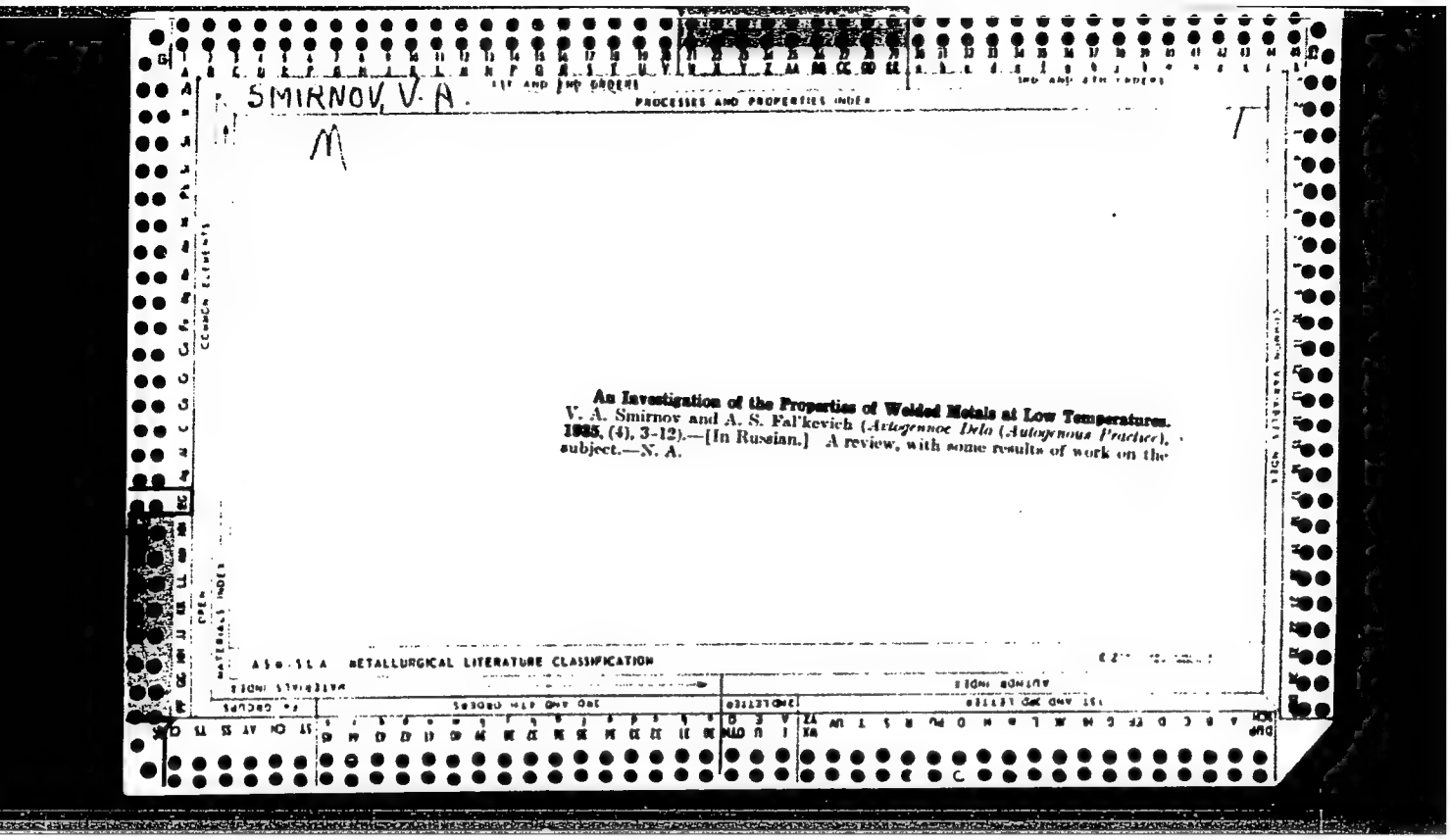


SMIRNOV, V.A.

PROCESSES AND PROPERTIES INDEX

Properties of Metals at Low Temperatures. V. A. Smirnov and A. S. Fal'kevich (*Khimstroi*, 1934, **6**, 548–551).—[In Russian.] *Cf. Met. Abs.*, this vol., p. 93. The discussion is continued.—S. G.

A 5 4-5 L A METALLURGICAL LITERATURE CLASSIFICATION

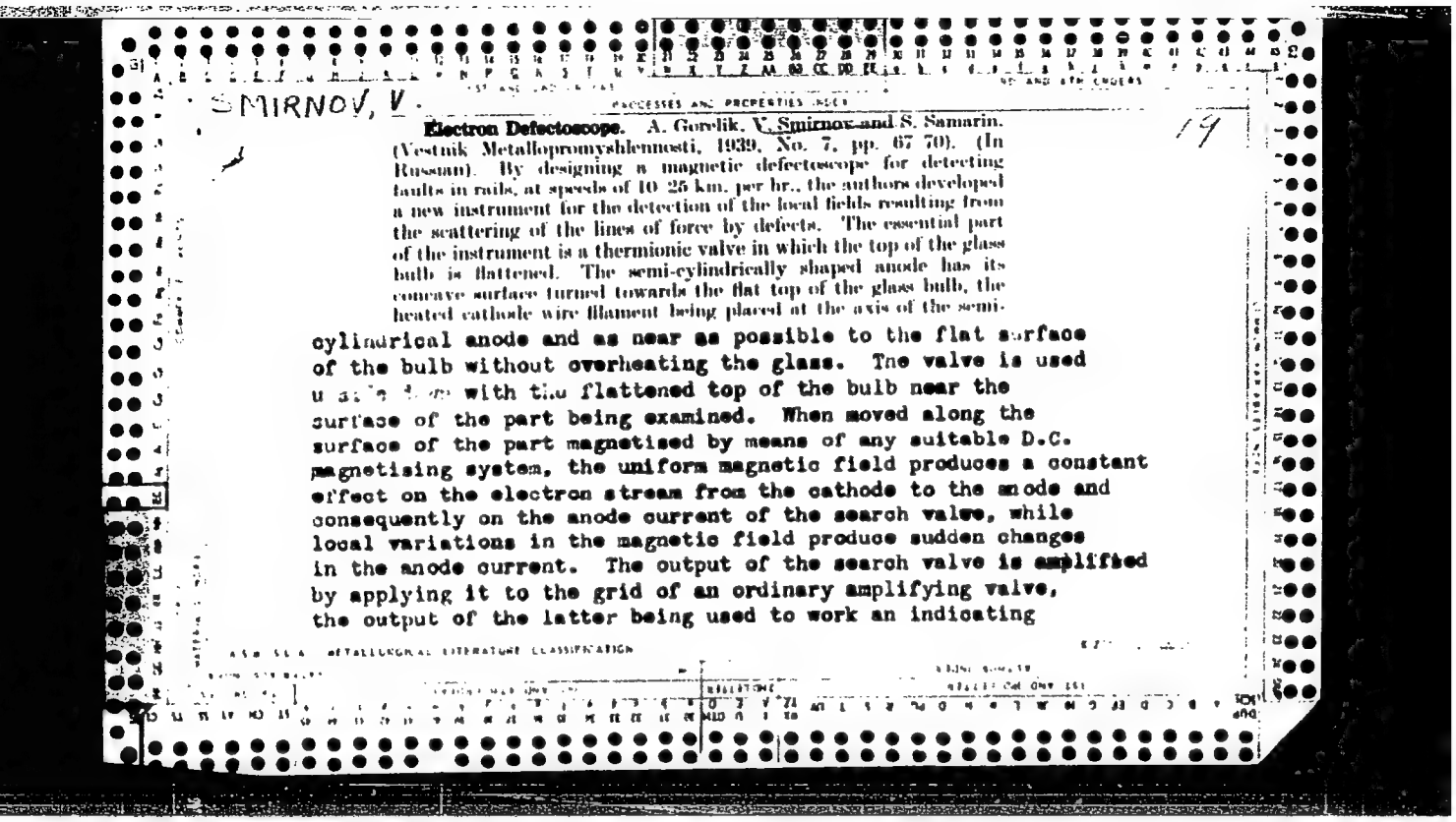


SMIRNOV, V. A.

M

An Investigation of the Properties of Welded Metals at Low Temperatures. V. A. Smirnov and A. S. Fal'kevich (*Avtogennoe Delo* (*Autogenous Practice*), **1935**, (4), 3-12).—[In Russian.] A review, with some results of work on the subject.—*N. A.*

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

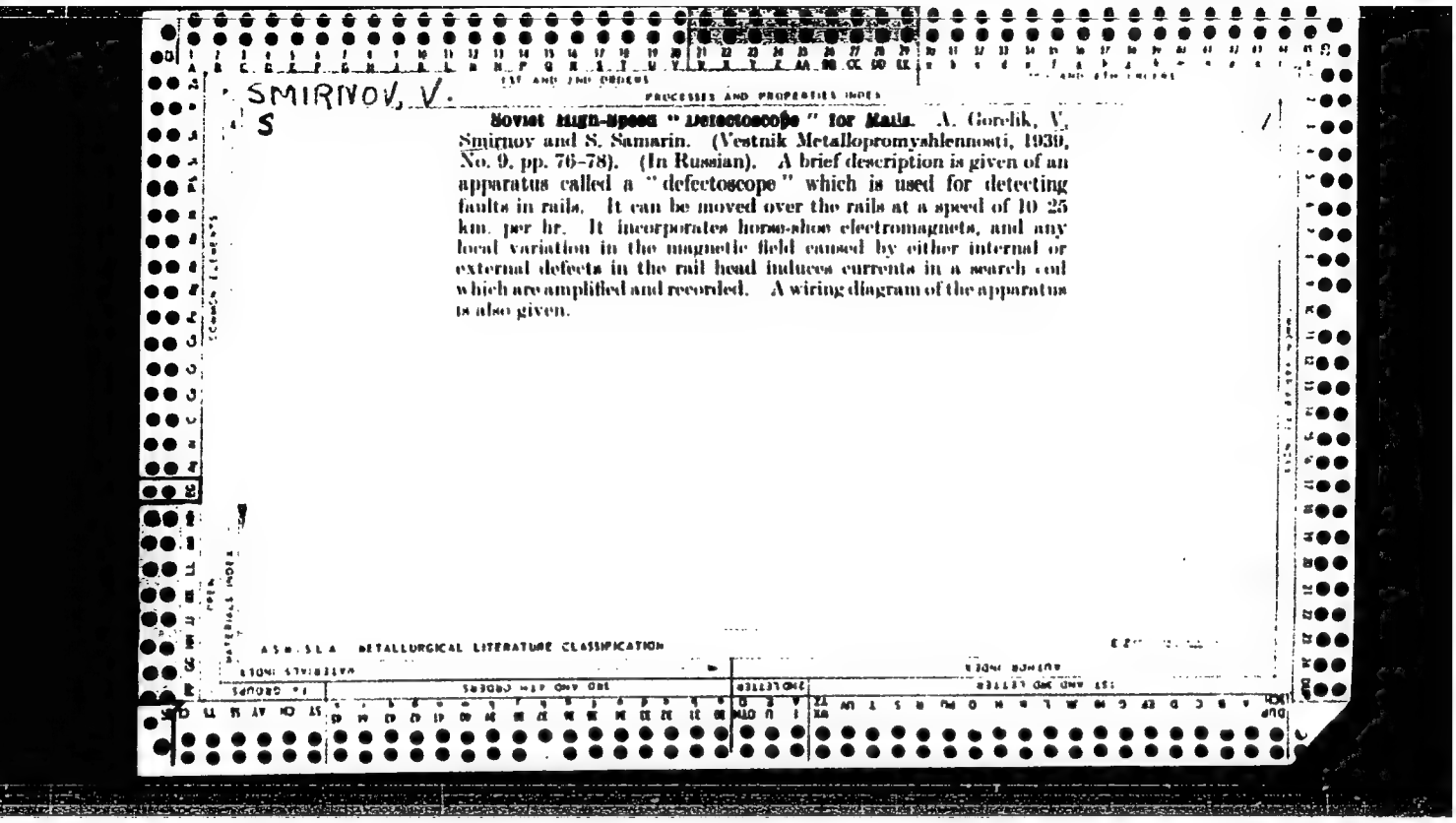


SMIRNOV, V.

19

Electron Defectoscope. A. Gorelik, V. Smirnov and S. Samarin. (Vestnik Metallopromyshlennosti, 1939, No. 7, pp. 67-70). (In Russian). By designing a magnetic defectoscope for detecting faults in rails, at speeds of 10-25 km. per hr., the authors developed a new instrument for the detection of the local fields resulting from the scattering of the lines of force by defects. The essential part of the instrument is a thermionic valve in which the top of the glass bulb is flattened. The semi-cylindrically shaped anode has its concave surface turned towards the flat top of the glass bulb, the heated cathode wire filament being placed at the axis of the semi-cylindrical anode and as near as possible to the flat surface of the bulb without overheating the glass. The valve is used [illegible] with the flattened top of the bulb near the surface of the part being examined. When moved along the surface of the part magnetised by means of any suitable D.C. magnetising system, the uniform magnetic field produces a constant effect on the electron stream from the cathode to the anode and consequently on the anode current of the search valve, while local variations in the magnetic field produce sudden changes in the anode current. The output of the search valve is amplified by applying it to the grid of an ordinary amplifying valve, the output of the latter being used to work an indicating

device such as a milliammeter, a sensitive relay or an oscillograph. By adjusting the grid bias of the amplifying valve, the effect of a steady magnetic field on the output of the search valve is neutralised and the indicating device made to work only when a flaw causes a sudden change in output. Tests have shown that with this instrument it is possible to detect defects amounting to only a few tenths of one per cent of the total section of the rail. The other advantages of the electron defectoscope are that it is independent of the speed at which it is moved over the object and the ease with which its sensitivity can be varied by adjusting the anode and filament potentials of the search valve.



SMIRNOV, V.

S

Soviet High-Speed "Defectoscope" for Rails. A. Gorelik, V. Smirnov and S. Samarin. (Vestnik Metallopromyshlennosti, 1930, No. 9, pp. 76–78). (In Russian). A brief description is given of an apparatus called a "defectoscope" which is used for detecting faults in rails. It can be moved over the rails at a speed of 10–25 km. per hr. It incorporates horse-shoe electromagnets, and any local variation in the magnetic field caused by either internal or external defects in the rail head induces currents in a search coil which are amplified and recorded. A wiring diagram of the apparatus is also given.

KHAL'KOVTSEV, G.N.; SHOLOKHOV, V.F.; KAPLAN, A.S.; SLAVKIN, V.S.; YAVNILOVICH, Ye.A.; MEL'NICHENKO, S.D.; SMIRNOV, V.A.; MATYUSHINA, N.V., redaktor; GORDIYENKO, V.K., redaktor; ROZENTSVEIG, Ya.D., redaktor izdatel'stva; BERLOV, A.P., tekhnicheskiy redaktor

[Reference manual for State standards and technical specifications for ferrous metals] Spravochnik po gosudarstvennym standartam i tekhnicheskim usloviiam na chernye metally. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. (MIRA 10:7)
567 p.

1. Russia (1923- U.S.S.R.) Ministerstvo chernoy metallurgii.
(Iron--Standards) (Steel--Standards)

SMIRNOV, V.

4E2c

Investigations at the Novo-Tagil' Works. V. Smirnov and I. Shmonin. (*Stal'*, 1956, (7), 658–661). (In Russian). Research work carried out during 1956 at the Novo-Tagil' works is described. The blast-furnace, steel-melting and rolling processes were investigated and the adoption of new techniques facilitated. Metallographic and heat-treatment studies were included.—S. K.

130 - 6 - 24/27

AUTHOR: Smirnov, V.A.

TITLE: New types of equipment for nut and bolt production. (Novye tipy oborudovaniya dlya proizvodstva boltov i gayek).

PERIODICAL: "Metallurg" (Metallurgist), 1957, No.6, pp.45-47 (USSR).

ABSTRACT: An illustrated survey is given of nut and bolt producing machines made in capitalist countries since the war.

There are 6 figures.

ASSOCIATION: Technical Department of Glavmetiz of the Ministry of Ferrous Metallurgy of the USSR. (Nachal'nik Tekhnicheskogo Otdela Glavmetiza MChM SSSR).

AVAILABLE:

Card 1/1

VERKHUSHKIN, Vladimir Alekseyevich; SMIRNOV, V.A., red.; BRUSHTEYN, A.I., red.izd-va; EVENSON, I.M., tekhn.red.

[Technical norms for manufacturing metalware] Tekhnicheskoe normirovanie metiznogo proizvodstva. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 141 p. (MIRA 14:3)

(Metalwork)

DASHEVSKIY, Semen Izrailevich; SMIRNOV, V.A., red.; LEVIT, Ye.I., red. izd-va; ISLENT'YEV, P.G., tekhn. red.

[Manufacture of nails] Proizvodstvo gvozdei. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 159 p. (MIRA 14:6)

(Nails and spikes)

SMIRNOV, V. A.

USSR/Electricity - Synchronous Machines Oct 51

"Experimental Determination of the Parameters of Synchronous Machines According to Damping Curves," V. A. Smirnov, Cand Tech Sci, Acad imeni Krylov

"Elektrichestvo" No 10, pp 24-28

Proposes a method for exptl detn of the basic parameters of a synchronous machine. The method is simple and quite accurate. Submitted 25 Jun 51.

201T39

SMIRNOV, V. A.

trical Engineering Abstracts
1954
trical Engineering

621.316.1

2343. Automatization of an urban distribution network. V. A. SMIRNOV. *Energetik*, 1953, *No.* 6, 4–8. *In Russian.*

Details are given of several switching systems for automatic throwing of the full substation load on to the second supply line after a faulted line is cut out from a double radial system [see previous abstract]. Switches are automatically operated to revert to the normal supply system immediately on voltage restoration following fault clearance. Mechanical interlocks prevent simultaneous connection of both supply lines. The double-radial system does not require interconnection of l.v. sides of transformers and in some cases is preferable to the secondary network system.

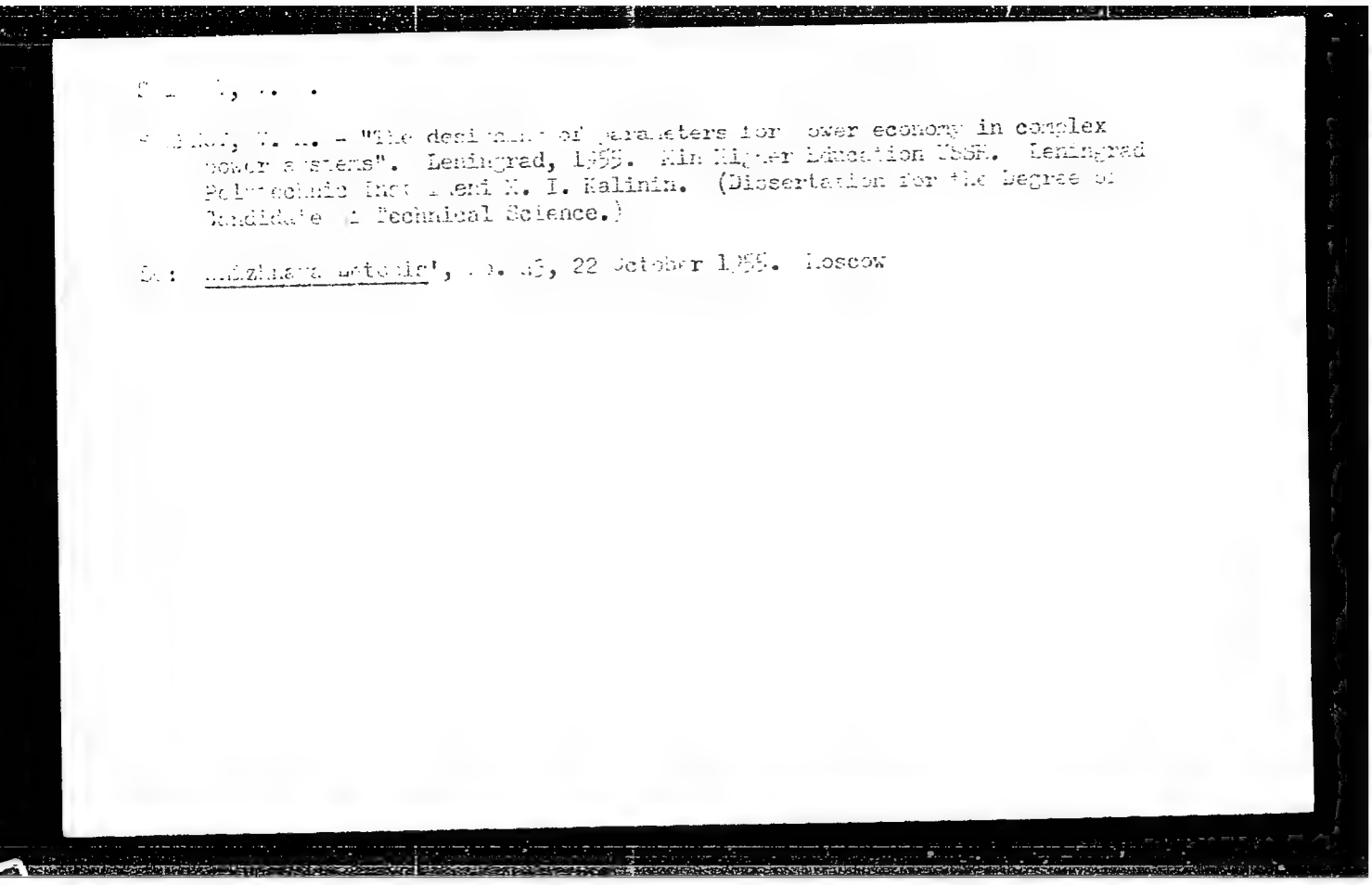
J. LUKASZEWICZ

SMIRNOV, V.A., inzhener.

Selecting an economical size of intake tubes. Gidr.stroi. 22 no.8:26-29 Ag '53. (MLRA 6:8)
(Hydroelectric power stations)

SMIRNOV, V.A.;TSYGODA, I.M.

Practice of feeding electric filters with one half-period current.
Trudy Alt.GMMII AN Kazakh.SSR 1:136-142 '54. (MLRA 10:1)
(Electric filters) (Copper--Metallurgy)



[illegible], V. ... - "The deci[illegible] of parameters for power economy in complex power systems". Leningrad, 1955. Min Higher Education USSR. Leningrad Polytechnic Inst imeni M. I. Kalinin. (Dissertation for the Degree of Kandidat [illegible] Technical Science.)

SO: Vechernaya Moskva, 22 October 1955. Moscow

IONKIN,P.A.; PANTYUSHIN,V.S., professor; SMIRNOV,V.A.; KURDYUKOV,N.N., redaktor; KOROLEVA,L.I., tekhnicheskiy redaktor

[Collection of problems and exercises in general electric engineering] Sbornik zadach i uprazhnenii po obshchei elektrotekhnike. Izd. 3-e, dop. i perer. Moskva, Gos.izd-vo "Sovetskaia nauka," 1955. 460 p. (MIRA 9:3)
(Electric engineering--Problems, exercises, etc.)

CHILIKIN, M.G.; LARIONOV, A.N.; PETROV, G.N.; MESHKOV, V.V.; GOLOVAN, A.T.; LYSOV, N.Ye.; PANTYUSHIN, V.S.; KURBATOVA, N.S.; SMIRNOV, V.A.

Professor E.V.Nitusov. Elektrichestvo no.6:85 Je '55.(MIRA 8:6)
(Nitusov, Evgenii Vasil'evich, 1895-)

GOLUBTSOVA, V.A.; CHILIKIN, M.G.; MARGULOVA, T.Kh.; MESHKOV, V.V.; DROZDOV, N.G.; PEREKALIN, M.A.; SMIRNOV, V.A.

Professor V.S. Pantiushin. Elektrichestvo no.7:93 Jl'56. (MLRA 9:10)

(Pantiushin, Vasilii Sergeevich, 1906-)

SMIRNOV, V. A.

Heat Transfer During Pellicular Condensation of Pure, Motionless, Saturated Vapors on Vertical Pipes.

Akademiya nauk SSSR. Energeticheskiy institut
Teplo- i massoobmen v protsessakh ispareniya (Heat- and Mass-Transfer in Evaporation Processes) Moscow, Izd-vo AN SSSR, 1958. 254p. 5,000 copies printed.

IONKIN, P.A.; PANTYUSHIN, V.S., prof.; SMIRNOV, V.A.; KURDYUKOV, N.N., red.; ANOSHINA, K.I., red.izd-va; GRIGORCHUK, L.A., tekhn.red.

[Collected problems and exercises on general electric engineering] Sbornik zadach i uprazhnenii po obshchei elektrotekhnike. Pod red. V.S.Pantiushina. Izd. 4. Moskva, Gos.izd-vo "Sovetskaia nauka," 1958. 458 p. (MIRA 12:8)

(Electric engineering)

SMIRNOV, V. A.,

"Justification of the Size of Annual Expenditures on Long-distance Electric Transmission Lines," p 648.

Smirnov V.A.

AUTHOR: Smirnov, V.A., Candidate of Technical Sciences 98-1-10/20

TITLE: The Effect of the Technical-Economic Characteristics of a Replaced Power Unit Upon the Selection of Parameters of Hydroelectric Power Plants (Vliyaniye tekhniko-ekonomicheskikh pokazateley zamenyayemogo ob"yekta na vybor parametrov gidroelektrostantsii)

PERIODICAL: Gidrotekhnicheskoye Stroitel'stvo, 1958, # 1, pp 43-46 (USSR)

ABSTRACT: The author analyses the effects produced upon the parameters of a grid where a power unit is being substituted or the specific output of the grid is being increased. The author starts his studies from the following two conditions: 1. The minimum rated annual output of the grid is:

$$\left(N_a+\frac{1}{T_{kp}}K_a\right)+\left(N_b+\frac{1}{T_{kp}}K_b\right)+\ldots+$$
$$+\left(N_{zam}+\frac{1}{T_{kp}}K_{zam}\right)=MiN_j$$

2. Identity of the power energy effect of the grid is:

a) $\Delta\vartheta_a+\Delta\vartheta_b+\Delta\vartheta_c+\ldots+$
$+\Delta\vartheta_{zam}=CONST_j$

b) $\Delta N_{pa}+\Delta N_{pb}+\Delta N_{pc}+\ldots+$
$+\Delta N_{pzam}=CONST_j$

Card 1/ 4

The Effect of the Technical-Economic Characteristics of a Replaced Power Unit Upon the Selection of Parameters of Hydroelectric Power Plants

where $И_i$ and K_i are operational expenses (Amortization, wages, repairs, etc.) and capital investment, respectively connected with an increase of the the "i-"parameter, subscript зам shows the relation to a replaced unit;

$T_{кр}$ — is critical time of amortization;

$\Delta Э_i$ and ΔN_{pi} — are effects on the production of power and the replaced capacity, obtained in connection with the increase of "i"-parameter.

The calculation of the relative minimum

$$\sum \left(И_i + \frac{1}{T_{кр}} K_i \right) = MIN$$

at two boundary conditions is conducted according to ordinary rules and shows that in all cases a certain technico-economical correspondence must exist between the parameters of power engineering systems, and an optimum correlation between all para-

The Effect of the Technical-Economic Characteristics of a Replaced Power Unit Upon the Selection of Parameters of Hydroelectric Power Plants

meters. Generally, the efficiency of increased parameters of hydroelectric power plants depends upon additional specific expenditures

$$\varepsilon_i = \frac{\partial\left(N_i + \frac{1}{T_{ke}} K_i\right)}{\partial \vartheta_i}$$

and specific output of the replacing capacity

$$\sigma_i = \frac{\partial N_{pi}}{\partial \vartheta_i}$$

The indicator σ_i can be regarded as the coefficient of the replaced capacity, which characterizes the relation of the replaced unit capacity to the capacity of the unit to be installed. In a special case of an analysis of the efficiency of increased parameters of the hydroelectric power plant with respect to a conditionally replaced unit (in which no functional connection between the output energy and the replaced capacity exists)

SMIRNOV, V.A.

Basis of the amount of annual expenditures for long-distance electric power transmission. Trudy LPI no.195:648-655 '58. (MIRA 11:10)
(Electric power distribution)

SMIRNOV, V. A.

ANVEL'T, Moyya Yur'yevich; GERASIMOV, Viktor Grigor'yevich; ZAYDEL', Khristina Eduardovna; KOGEN-DALIN, Vladimir Viktorovich; LYSOV, Nikolay Yegorovich; MOROZOV, Dmitriy Nikolayevich; NITUSOV, Yevgeniy Vasil'yevich; PANTYUSHIN, Vasiliy Sergeyevich, prof.; PUKHLYAKOV, Yuriy Kharlampiyevich; SMIRNOV, Vladimir Aleksandrovich; UTKIN, Ivan Vasil'yevich; SHAROKHIN, Grigoriy Ivanovich; KASATKIN, A.S., retsenzent, red.; BORUNOV, N.I., tekhn.red.

[Electrical engineering; general course] Elektrotekhnika; obshchii kurs. Pod red. V.S.Pantiushina. Moskva, Gos.energ. izd-vo, 1959. 632 p. (MIRA 13:1)
(Electricity)

SMIRNOV, V.A., kand.tekhn.nauk

Technological and economic basis for selecting the cross section of wires for electric networks and power transmission lines. Energ. sbor. no.2:141-152 '59. (MIRA 15:1)
(Electric lines)
(Electric power distribution)

SOV/105-59-3-7/27

8(5)

AUTHOR: Smirnov, V. A., Candidate of Technical Sciences, Docent (Leningrad)

TITLE: Voltage Variation of Self-excited Synchronous Alternators at Sudden Load Increase (Izmeneniya napryazheniya sinkhronnykh generatorov s samovozbuzhdeniyem pri vnezapnykh vklyucheniyakh nagruzki)

PERIODICAL: Elektrichestvo, 1959, Nr 3, pp 32-36 (USSR)

ABSTRACT: In recent years, compounded synchronous alternators which are self-excited across semiconductor rectifiers have more and more come into use. Their main field of application is that of small-power alternating current supply systems. A specific feature of the operation of such power supply systems is the sudden connection of loads comparable in magnitude to the generator output. The currents originating in such instances with a low power factor of about 0.3 - 0.4 lead to considerable voltage drops in the system. The variation of the alternator voltage under the above mentioned conditions is investigated in the paper under review. The nature of the variation of the exciter current and of the terminal voltage of a compounded self-excited generator is greatly dependent upon the armature reaction compensation by the compounding component of the exciter current. Oscillograms are presented, which elucidate the transients at overcompensation, normal compensation, and

Card 1/3

Voltage Variation of Self-excited Synchronous Alternators at Sudden Load Increase

under compensation of the armature reaction for one and the same generator. It can be seen that in all three cases the initial jump of the exciter current and the momentary voltage drop are equal and independent of the degree of compounding at equal load increase, whereas their time variation exhibits a different nature. The transients occurring at sudden load increase are analysed mathematically. Equation (4) is derived from which can be seen that the time constant T'_d is greatly dependent upon the armature reaction compensation and upon the magnitude of the added load and that it decreases in case the added load increases. Hence it can be assumed that the compensation coefficient ε' should be increased as much as possible to achieve a rapid restoration of the voltage level, as only a considerable overcompensation guarantees a small time constant. It is shown, that if $\varepsilon' = 0$ the generator voltage is not restored, or is restored only very slowly. It is further shown that in order to obtain a stable operation of a self-excited generator it is necessary to design the magnetic system with a high saturation. Formula (6) specifying the terminal voltage variation of a self-excited generator and taking into account the stabilizing effects of saturation at $\varepsilon' > 0$ is derived. This formula is used if the compensation is not

Card 2/3

8 (6)

SOV/91-59-4-20/28

AUTHOR: Smirnov, V. A., Engineer

TITLE: Automatic Circuits for Switching on Reserve Units of 6-10kv City Network Distribution Points (Skhemy avtomaticheskogo vklyucheniya rezerva v raspredelitel'nykh punktakh gorodskikh setey 6-10 kv)

PERIODICAL Energetik, 1959, Nr 4, pp 29 - 33 (USSR)

ABSTRACT: The author explains the different automatic devices switching on the reserve units of the 6-10 kv cable network of Moscow. Figures 1 - 4 show the circuit arrangements of these relay devices which are explained in the text. There are 4 diagrams.

Card 1/1

8(2)

SOV/91-59-6-24/33

AUTHOR: Smirnov, V.A., Engineer

TITLE: Plans for the Automatic Reserve Closing of Transformer Points on a Two-Beam 6-10 kv Distribution Network

PERIODICAL: Energetik, 1959, Nr 6, pp 29-33 (USSR)

ABSTRACT: This is a continuation of an article on subject matter published in this periodical, Nr 4, 1959. The article is intended for low-grade personnel employed in the field of power engineering, as an aid to their professional self-education. It contains descriptions of the principal features of five standard plans of the type given in the title, used within the Moskovskaya kabel'naya set' (Moscow Cable Network). The circuit diagram of a basic system for the automatic reserve closing of transformer points ("TPs") of a two-beam high-voltage distribution network is shown in Figure 1. Figure 3 shows one of its variations. A circuit diagram of automatic reserve closing ("AVR") in a low-voltage TP, used in power stations SU-1950, is shown

Card 1/2

8(6), 28(1)
AUTHOR: Smirnov, V.A., Engineer

SOV/91-59-7-15/21

TITLE: Automatic Circuits Connecting the Reserve Units at Transformer Stations of a Single-Direction 6-10 kv Power Distribution Network

PERIODICAL: Energetik, 1959, Nr 7, pp 26-30 (USSR)

ABSTRACT: The author describes the automatic relay circuits for single-direction distribution networks developed and used by the Moskovskaya kabel'naya set-'-MKS- ("Moscow Cable Network). This is a continuation of the articles published in "Energetik" 1959, Nr 4 and 6. The state of the equipment shown in the circuit diagrams corresponds to the normal operating conditions. The author explains the automation circuits and their functions of two transformer stations in networks equipped with automatic two-way and minimum voltage relays. Fig. 1 and 4 show the automation circuit diagram of two transformers stations of the single-direction distribution system with the aforementioned ty-

Card 1/3

pes of relays. Fig. 2 shows the automatic two-way switching relays of a transformer station. The author further describes three versions of automatic relay equipment of three transformer stations in a single-direction system. Finally, he presents a description of automatic transformer station equipment for a loop distribution system which is used in one district of the Moscow Cable Network. The automation of distribution networks provides uninterrupted power supply for important consumers. For the large-scale introduction of the automatic relay equipment, economic factors must be taken into consideration. By no means, all transformers station should be equipped with automatic relays, since this would lead to an excessive spending of governmental funds. Primarily, transformer stations should receive automatic equipment supplying category I consumers (theaters, clubs, restaurants, stores, hospitals, communication enterprises and other installations which must have continuous

Automatic Circuits Connecting the Reserve Units at Transformer Stations of a Single-Direction 6-10 kv Power Distribution Network

power supply). Secondarily, transformer stations should receive automatic equipment supplying category II consumers (administration and public buildings, schools, kindergartens and all buildings of more than four stories). Transformer stations supplying category III consumers (Buildings of less than four stories, storage buildings, etc.) and transformer station not meeting contemporary requirements should not be equipped with automatic relays. There are 6 circuit diagrams.

STAROBA, Y. [Staroba, J.]; SHIMORDA, Y. [Simorda, J.]; SPINADEL', V.L. [translator]; SMIRNOV, V.A., red.; TIMOKHINA, V.I., red.; BORUNOV, N.I., tekhn.red.

[Static electricity in industry] Staticheskoe elektrichestvo v promyshlennosti. Moskva, Gos.energ.izd-vo, 1960. 247 p. Translated from the Czech. (MIRA 13:9)
(Electrostatics) (Electricity, Injuries from)

ACCESSION NR: AP4017601 S/0109/64/009/002/0308/0316

AUTHOR: Smirnov, V. A.; Nikonov, B. P.

TITLE: Emission and adsorption characteristics of BaO-Ba system

SOURCE: Radiotekhnika i elektronika, v. 9, no. 2, 1964, 308-316

TOPIC TAGS: BaO Ba cathode, oxide cathode, activated oxide cathode, BaO Ba cathode adsorption, BaO Ba cathode emission

ABSTRACT: An experimental investigation of the emission and adsorption of BaO-Ba at 550-1,150K in a constant Ba stream of 10^{8}-10^{10} atoms/cm^2 sec is reported. The structure and preparation of the test device are described in detail. The surface of naturally activated BaO is almost entirely covered with Ba; however, a small additional Ba spraying (up to 1.5×10^{13} atoms/cm^2) results in a further reduction of the work function (by 0.3-0.4 ev), with a corresponding reduction of Ba evaporation heat from 3.9 to 2.4 ev. According to an

Card 1/2

KUDRYAVTSEV, Yu.D.; GOLUBCHIK, Ye.M.; SMIRNOV, V.A.

Electrolytic production of a chromium-molybdenum alloy.
Trudy NPI 146:41-46 '64. (MIRA 18:11)

KUDRYAVTSEVA, I.P.; MINKINA, I.M., SEMYONENKO, V.D.; POPOV, S.Ya.; SMIRNOV, V.A.

Electrolytic iron plating in ammonium chloride electrolytes. Trudy NPI 14[illegible]:55-59 '64. (MIRA 18:11)

L 44960-66 EWT(m)/T/EWP(t)ETI IJP(c) DS/JD/JG

ACC NR: AP6013262 SOURCE CODE: UR/0413/66/000/008/0052/0052 36 B

INVENTOR: Afanas' yev, V. A.; Volodin, Yu. A.; Smirnov, V. A.; Druzhinin, A. V.

ORG: none

TITLE: Oxide-coated cathode [1] Class 21, No. 180710 [15]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 52

TOPIC TAGS: electron tube cathode, surface active coating, iridium coating, osmium coating, oxide coating, oxide coated cathode

ABSTRACT: An Author Certificate has been issued describing an oxide-coated cathode for electronic tubes containing a base on part of the surface of which is an emissive coating. To suppress the emission with an inactive surface coating and to obtain a clearly defined emitting surface, an iridium [11] or osmium [21] coating is applied on the inactive surface of the emissive coating. [Translation] [NT]

SUB CODE: 09/ SUBM DATE: 20Apr65/

Card 1/1 UDC: 621.385.032.213.6

SHIRNOV, V. A.

"A Method of Calculating Distortions in the Detection of F-M Signals," Zhur. Tekh. Fiz., 15, No.10, 1945

SMIRNOV, V. A.

"Theoretical Investigation of the Influence of Radio Waves Propagation in Many Rays Upon the Communication by Means of Short Waves and Frequency Modulation," Zhur. tekh. fiz., 15, No.11, 1945.

Central Sci. Res. Inst., NK Communications

SMIRNOV, V. A., professor, redaktor; MOGILEVSKIY, Yu.A., redaktor; BELEVA, M.A., tekhnicheskiy redaktor.

[Radio relay systems; a collection of articles. Translations from the English] Radiorelelnye linii sviazi; sbornik statei. Moskva, Izd-vo inostrannoi lit-ry, 1956. 584 p. (MLRA 9:5)
(Radio relay systems)

AID P - 4529

Subject : USSR/Electronics

Card 1/2 Pub. 90 - 2/10

Author : Smirnov, V. A.

Title : Nonlinear distortions in multichannel FM communication systems.

Periodical : Radiotekhnika, 2, 14-28, F 1956

Abstract : The author develops formulae for the calculation of the power of nonlinear transient noises appearing in separate telephone channels of a multichannel FM communication system. The noise interferences are caused by the multiplex wave propagation. Probability theory is applied to evaluate the statistics of the noise wave ensemble. In particular, the author obtains a formula for the calculation of the power spectrum of noises caused by the inequalities in the propagation constant of the antenna waveguides and of loads. This creates echo interferences which are characteristic of multiplex

PHASE I BOOK EXPLOITATION 492

Smirnov, Vasiliy Alekseyevich

Osnovy radiosvyazi na ul'trakorotkikh volnakh (Principles of Microwave Radio Communication) Moscow, Svyaz'izdat, 1957. 818 p. 10,000 copies printed.

Resp. Ed.: Borodich, S. V.; Ed.: Gorokhovskiy, A. V.; Tech. Ed.: Bereslavskaya, L. Sh.

PURPOSE: This monograph is addressed to students of radio and radio engineers.

COVERAGE: This monograph represents a first attempt to fill the need for a book giving a systematized treatment of both the theoretical and practical phases of microwave radio communications. Sections on mathematics and physics were included in the book to render the body of the work more accessible to the student. An attempt is made in the text to show the relation of theoretical concepts to practice. Formulas applicable to the design of microwave communications systems, as well as other practical information and data, are given at the end of each chapter.

Card 1/ 12

AUTHOR: Smirnov, V.; Furin, V. SOV-107-58-4-30/57

TITLE: An AF Amplifier (NCh usilitel')

PERIODICAL: Radio, 1958, Nr 4, pp 26-28 (USSR)

ABSTRACT: The author describe a 5-tube plus rectifier AF amplifier of 12 watt output capacity. The amplifier has relatively small non-linear distortion (0.8-1.2%) and an input voltage of 70 mv. It has an even converage of from 20 to 30 cs up to 15 to 20 kcs and is intended for use in a radio receiver, television set, tape recorder, or a combination thereof. A compensated volume control is built into the input circuit and the second stage is in effect a tone control with broad coverage (see graphs 1-2). The third stage gives great voltage amplification, which permits the inclusion of several circuits of deep negative feedback, and is coupled to the fourth stage, the phase invertor, through a condenser, the whole being coupled to a push-pull output stage. Noise level and a.c. background hum is reduced to 60 db by the use of deep negative feedback in the amplifier. Two assembly schemes are given: 1) with rectifier and power pack mounted on a separate chassis, and 2) with the first two stages (double-triode) complete with tone and volume controls on one chassis

Card 1/2

SOV-107-58-9-19/38

AUTHOR: ~~Smirnov, V.~~ (Pionerskaya RR Station, Kalinin Rail-road Line)

TITLE: An Electronic Fuse (Elektronnyy predokhranitel')

PERIODICAL: Radio, 1958, Nr 9, pp 28 (USSR)

ABSTRACT: The described electronic fuse will disconnect the power line in case of short-circuiting or overloading and reconnect it when conditions return to normal. When overloading occurs, or there is a short-circuit in the line, the voltage to the tube drops, plate current also drops or falls to zero and this trips the relay which disconnects the power line. The resistance of the line is then automatically checked. It is fed via a transformer, rectified by a transistor diode, to the grid of the tube in the form of negative bias. While the fault in the line exists the anode current will be minimal. When cured the bias returns to normal, current flows to the anode, the relay is

Card 1/2

reset and the power line reconnected to its load. The device may also be used for drawing power for short periods at high voltages from the electric grid, e.g. for the electro-welding of leads. There is 1 circuit diagram.

1. Electric current--Safety measures 2. Fuzes(Electricity) --Performance

AUTHOR: Smirnov, V. SOV/107-58-11-31/40

TITLE: Compensated Volume Controllers (Kompensirovannyye regulyatory gromkosti)

PERIODICAL: Radio, 1958, Nr 11, pp 49-50 (USSR)

ABSTRACT: The author explains the need for compensated volume control, arising from the fact that the human ear is not uniformly sensitive over the entire auditory scale (Figure 1), and then describes systems of compensated volume control consisting of voltage dividers dependent on frequency (Figures 2,3,4,5) and systems using negative feedback dependent on frequency (Figures 6,7). All the systems described have the advantage of using ordinary potentiometers without taps, which are frequent cause of rustling and crackling.
There are 5 circuit diagrams and 2 graphs.

Card 1/1

AUTHOR: Mirnov, V. V. [illegible]

TITLE: Influence of Fluctuation Noise in Communication Systems With Frequency Modulation [in Russian] Vliyaniye shumov v sistemakh svyazi s chastotnoy modulyatsiyey

SOURCE: Radiotekhnika, 1963, Vol. 18, No. 9, pp. [illegible]

ABSTRACT: This is a presentation of a new method of theoretical investigation of the influence of fluctuation noise in communication systems with frequency modulation. Certain results were already reported by the present author in references 1, 2, 3. They were, however, in spite of many simplifying assumptions, much too complicated. In this paper the problem is solved in a more simple manner, at the same time maintaining sufficient generality. The formulas obtained can be used in practical computations. A method of computing the noise at the receiver output is presented for the case of relatively small noise input. The problem is essentially that of determining the spectral density distribution of the function $\varepsilon(t)$ which is associated by $G_\varepsilon(\Omega)$. $\varepsilon_1(t)$ is the phase of noise oscillations at the output of the frequency amplifier. First the density of the

...ference of Fluctuation Noise in Communication Systems With Frequency Modulation

Spectrum of the function $\varepsilon_1(t) - \varepsilon_2(t)$ is determined. In order to find this distribution first the correlation function of $\varepsilon_1(t)$ must be found. This function K_ε ... is a complex formula (...). If it is known the spectrum (or ...) of the function ε ... can be computed according to formula (...). Formula (...) reads:

$K_{\varepsilon}(\tau) = \sum_{n=...}^{\infty} K_n(\tau)$, where $k_n(\tau)$ is the autocorrelation function of the n-th term of the series according to formula (...). For this autocorrelation function a formula ... is derived. In the next section the density of the noise spectrum $G_\varepsilon(\Omega)$ is found. It is specified by equation (47) which presents a general solution and which only holds at $n \geqslant$ ... From this formula more simple relations for n = 3, 4, and 5, formulae (45), (49), and (50) are deduced. Equations for the signal-to-noise ratio at the output of the receiver, (51) and (52), respectively, are written down. It is shown that Q is dependent upon four factors. With the

Influence of Fluctuation Noise in Communication Systems with Frequency Modulation

help of computations obtained curves are plotted. They characterize the noise level and the nature of the noise variation when some of the system parameters are modified. There are 2 figures, 1 table, and 9 references, 6 of which are Soviet.

SUBMITTED: October 12, 1957 (initially) and May 20, 1958 (after revision)

AUTHOR: Smirnov, V. SOV/107-59-1-32/51

TITLE: The Automatic Cutout (Avtomaticheskiy predokhranitel')

PERIODICAL: Radio, 1959, Nr 1, p 35 (USSR)

ABSTRACT: In reference to an article published in this periodical, Nr 9, which gives a design of an electronic cutout, the author describes a simplified circuit in which the tube is being replaced by a relay. There is one circuit and one Soviet reference.

Card 1/1

9 (4)

SOV/107-59-3-43/52

AUTHOR: Smirnov, V.

TITLE: A Three-Transistor Receiver (Priyemnik na trekh triodakh)

PERIODICAL: Radio, 1959, Nr 3, pp 54 - 55(USSR)

ABSTRACT: The author recommends a pocket-size three-transistor radio receiver which may be easily assembled by unexperienced amateurs. The radio works on wavelengths ranging from 550 to 1750 m. It is designed according to the scheme 2-V-2. It has two HF stages which amplify the HF signal to a level at which the detector will work. The first stage consists of one P6D transistor, while the second reflex amplifier stage contains one P15 transistor, whereby the latter stage also performs the function of a LF pre-amplifier. The detector is equipped with one D1A diode and the output LF amplifier contains one P14 transistor. The radio may be housed in a container of 110x110x25mm

Card 1/2

SMIRNOV, V.

High-quality amplifier. Radio no.9:45-46 S '60. (MIRA 13:10)
(Amplifiers (Electronics))

SMIRNOV, V. (Moskva)

A flat capacitor. Radio no.12:21 D '60. (MIRA 14:1)
(Electric capacitors)

22205

S/106/61/000/001/001/008
A055/A033

6.4800

AUTHOR: Smirnov, V. A.

TITLE: Utilization of zero deflection in the estimation of noises and distortions.

PERIODICAL: Elektrosvyaz', no. 1, 1961, 3 - 8

TEXT: This is a purely theoretical article, in which the author develops a general formula according to V. A. Kotel'nikov and applies this formula to some particular cases. In his theoretical study of the noiseproof feature, V. A. Kotel'nikov showed that, in an ideal receiver, the minimum of the RMS value of the deflection is

$$[\chi(t) - A_F(t)]^2 = \frac{1}{T}\int_{-T/2}^{T/2} [\chi(t) - A_F(t)]^2\, dt \qquad (1)$$

Card 1/5

Utilization of zero deflection in ....

where

$$\chi(t) = A(t,F_0) + N(t). \qquad (2)$$

In these equations, $A(t,F_0)$ is the useful input signal modulated by the communication $F_0 = F_0(t)$, $N(t)$ is the incoming fluctuation noise, and $A_F(t) = A(t,F)$ is the signal modulated by the communication $F = F(t)$, such as it is presented - noise included - at the output of the receiver. Discussing formula (1), the author proves mathematically (and resorting mainly to the variations-calculation) that, for any practical calculation of the output noise component, the condition

$$A(t,F_0) + N(t) - A(t,F) = 0 \qquad (9)$$

can be considered as fulfilled, in the case of ideal reception, whatever be the nature and the magnitude of the input noises. Starting from condition (9), the author proceeds first to establish a formula for the particular case of small fluctuation noises. This formula proves to be:

Card 2/ 5

Utilization of zero deflection in ....

$$\sigma_c^2 = \frac{\sigma_i^2}{\left(\frac{\partial A}{\partial F_0}\right)^2} \qquad (14)$$

where σ_i is the intensity of the noise spectrum at the input of the receiver, and σ_c is the intensity of the noise spectrum at the output of an ideal receiver. The author then applies condition (9) to the case of strong fluctuation noises. In this case, he deduces his formulae separately for amplitude modulation, phase modulation and frequency modulation. For amplitude modulation he finally obtains the following expression of the fluctuation spectrum density:

$$G_{\Delta F}(F)_{AM} = \frac{2\sigma_i^2}{A_0^2 M^2} \qquad (26)$$

This formula is valid for any input signal-noise ratio. For phase modulation, the final formula arrived at by the author is:

Card 3/5

$$\Delta F_{PM} = \frac{2}{\Delta\varphi} \quad \text{arc sin} \frac{E}{2A_0} \tag{31}$$

for any input signal-noise ratio. For relatively weak input noises, the formula is:

$$G_{\Delta F}(F)_{PM} = \frac{2\sigma_i^2}{A_0^2 \Delta\varphi^2} \tag{33}$$

$\Delta\varphi$ being the modulation index. [Abstractor's note: subscript PM (phase modulation) is a translation of the original ΦM (fazovaya modulyatsiya).] For frequency modulation, the corresponding formulae are:

$$\Delta F_{FM} = \frac{E'}{A_0 \Delta\omega_m \sqrt{1 - E^2/4A_0^2}} \tag{35}$$

Card 4/5

Card 5/5

89822

S/111/61/000/003/001/001
B129/B202

6.4420
9.9882

AUTHORS: Kalashnikov, N. I. and Smirnov, V. A.

TITLE: Method of radio communication with the aid of the moon

PERIODICAL: Vestnik svyazi, no. 3, 1961, Inside Rear Cover

TEXT: To warrant the transmission of broad band communications, every discrete communication is transmitted by two pulses which are shifted with respect to one another. By means of various frequencies they are modulated in such a way that at the point of reception the output pulse is determined by the difference of the envelopes of the two above pulses. This makes it possible to reduce the reciprocal influence of pulses of neighboring channels. Author's certificate no. 132,680, class $24a^{4}22_{01}$.

Card 1/1

6.4400 (1031)

24854 S/106/61/000/005/002/006
A055/A133

AUTHOR: Smirnov, V. A.

TITLE: New methods for evaluating distortions due to multipath propagation of signals

PERIODICAL: Elektrosvyaz', no. 5, 1961, 10 - 17

TEXT: Distortions due to multipath propagation of signals have already been studied in many works, almost all of which, however, are limited to some particular case. The object of the present article is to work out a general method applicable to any communication system and allowing to evaluate multipath distortion. Two such methods, based upon the calculation of power ratios, are described by the author. In the first method, distortions are evaluated by the ratio between the power of distortion products at the input of the receiver and the power of the useful signal at this input. In the second method, distortions are calculated at the output of the receiver. First method: When several signals following different paths reach the receiver, the spectrum of the total signal at the receiver input will differ from the spectrum radiated by the transmitter antenna. This total signal can be expressed, in the general case of n paths, by:

Card 1/10

New methods for evaluating distortions ...

$$f_{\Sigma}(t) = A_m \sum_{i=1}^{n} K_i f(t + \tau_i) \quad (1)$$

where A_m is the oscillation-amplitude of the path with maximum intensity, $K_i = A_i/A_m \leq 1$ is the ratio between the amplitude of path i and the maximum amplitude, τ_i is the delay-time, and $f(t + \tau_1)$ is the function representing the modulated oscillation. It is also assumed that:

$$-1 \leq f(t + \tau_i) \leq 1 \quad (2)$$

Since function f (t) (representing the modulated oscillation at the output of the transmitter) is known, its spectrum is also known. Expressing by G (ω) the density of this spectrum, the author proceeds to derive a formula giving the spectrum density $G_{\Sigma}(\omega)$ of the function $f_{\Sigma}(t)$. He begins by establishing an expression for the correlation function for $f_{\Sigma}(t)$. This expression is found to be:

$$K_{\Sigma}(\tau) = A_m^2 \left[K(\tau) \sum_{i=1}^{n} k_i^2 + 2 \sum_{i=1}^{n} \sum_{j=i+1}^{n} k_i k_j K(\tau + \tau_j - \tau_i)\right] \quad (5)$$

where $K_{\Sigma}(\tau)$ is the correlation function for f (t). The spectrum density can be cal-

New methods for evaluating distortions ...

culated according to formula:

$$G_\Sigma(\omega) = 2\int_{-\infty}^{\infty} K_\Sigma(\tau)e^{-i\omega\tau}\,d\tau$$

The expression for $G_\Sigma(\omega)$, as finally obtained by the author, is:

$$G_\Sigma(\omega) = A_m^2 G(\omega)\left[\left(\sum_{l=1}^{n}\kappa_l\right)^2 - 4\sum_{l=1}^{n}\sum_{j=l+1}^{n}\kappa_l\kappa_j \sin^2\frac{\omega(\tau_j-\tau_l)}{2}\right]. \qquad (9)$$

Multiplying (9) by df and integrating within the limits of the real signal-band, the author finds:

$$P_\Sigma = PA_m^2\left(\sum_{l=1}^{n}\kappa_l\right)^2 - 2A_m^2\sum_{l=1}^{n}\sum_{j=l+1}^{n}\kappa_l\kappa_j[P - K(\tau_j-\tau_l)], \qquad (10)$$

where P = K(o) is the average power of f (t). If all delay-times τ_l in (1) are equal, there will be no distortion, and the power of all oscillations will be determined by the first term of (10). The second term of (10) is different from zero only when one, at least, of the n paths brings an oscillation not in phase with the others. This second term represents therefore the power of multipath - distortion products at the receiver input. The useful power at the receiver input being

New methods for evaluating distortions ...

$$P_i = A_m^2 \left(\sum_{i=1}^{n} \kappa_i \right)^2 P$$

the ratio between the power of multipath-distortion products at the input of the receiver and the useful power at the input of the receiver is given by:

$$\eta_i = \frac{2 \sum_{i=1}^{n} \sum_{j=i+1}^{n} \kappa_i \kappa_j \left[1 - \frac{K(\tau_j - \tau_i)}{K(0)} \right]}{\left(\sum_{i=1}^{n} \kappa_i \right)^2} \qquad (11)$$

Thus, knowing the function f (t), it is possible to calculate η_i for any set of values of K_i and τ_i. Since

$$0 \leqslant \frac{K(\tau_j - \tau_i)}{K(0)} \leqslant 1,$$

the maximum possible value of η_i will be:

$$\eta_{i\ max} = \frac{2 \sum_{i=1}^{n} \sum_{j=i+1}^{n} k_i k_j}{\left(\sum_{i=1}^{n} k_i \right)^2} \qquad (12)$$

Card 4/10

In the particular case of two paths, and assuming that $K_1 = 1$, $\tau_1 = 0$ for one path, and $K_2 = K$, $\tau_2 = \tau$ for the other, the author finds:

$$G_{\tau}(\omega) = A_m^2 \left[(1+\kappa)^2 - 4\kappa \sin^2 \frac{\omega\tau}{2}\right] G(\omega); \quad (16)$$

$$\eta_i = \frac{2\kappa [1 - K_{\tau}/K(0)]}{(1+\kappa)^2}. \quad (17)$$

$$\eta_{i\,max.} = \frac{2K}{(1+K)^2} \quad (18)$$

and, if K = 1:

$$\eta_{i\,max.max.} = \frac{1}{2} \quad (19)$$

All the above formulae were derived for fixed values of K_i and τ_i. In practice, however, these values vary, their variation being relatively slow. It is of interest, therefore, to find expressions for the average value η_i. In general case:

New methods for evaluating distortions ...

$$\overline{\eta_{ii}} = \frac{2\sum_{i=1}^{n}\sum_{j=i+1}^{n}\overline{\kappa_i\kappa_j\left[1-\frac{K(\tau_j-\tau_i)}{K(0)}\right]}}{\left(\sum_{i=1}^{n}\kappa_i\right)^2} \qquad (21)$$

Averaging cannot be difficult if the distribution laws for K_i and τ_i are known. It is particularly simple if all parameters of K_i and τ_i are supposed to be mutually independent and equally probable. In that case:

$$\overline{\eta_{ii}} = \left[1-\frac{\overline{K(\tau)}}{K(0)}\right]\frac{1}{1+\frac{4}{3(n-1)}}. \qquad (22)$$

wher $\overline{K(\tau)}$ is the average value of the correlation function. In the case of a very great number of paths, the following relation may be resorted to:

$$\overline{\eta_i} = 1 - \frac{\overline{K(\tau)}}{K(0)} \qquad (23)$$

Card 6/ 10

New methods for evaluating distortions ...

Second method: This method implying the calculation of distortions at the output of the receiver, it is necessary to take into account the reception system (demodulation). An analogy existing between this calculation and the calculation of fluctuation noises, it seems approximate to follow Kotel'nikov's example [Ref. 12: V. A. Kotel'nikov. Teoriya potentsial'noy pomekhoustoychivosti (Theory of potential noise-proofness), GEI., 1956] and to consider the case of the ideal receiver. Using Kotel'nikov's basic formulae for this receiver and some of the formulae deduced by himself in one of his earlier articles [Ref. 13: V. A. Smirnov. Primeneniye nulevogo otkloneniya dlya otsenki shumov i iskazheniy (Using Zero Deflection for the Rating of Noises and Distortions), Elektrosvyaz', 1961, no. 1], the author calculates the minimum possible value of multipath distortions at the output of the ideal receiver; he deduces a set of expressions (analogous to those of Kotel'nikov for fluctuation noises) in the cases of amplitude modulation, phase modulation and frequency modulation. In the case of amplitude modulation, he obtains:

$$F_{AM} = -\left(F_0 + \frac{1}{M}\right) + \frac{\sqrt{\left[\sum_{l=1}^{n} \kappa_l (1+MF_\Omega) \sin \vartheta_l\right]^2 + \left[\sum_{l=1}^{n} \kappa_l (1+MF_\Omega) \cos \vartheta_l\right]^2}}{M \sum_{l=1}^{n} \kappa_l} \quad (29)$$

Card 7/10